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AUTHOR	Ochsner, Heinz; Thomas, Karen
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ABSTRACT

The Internet has brought about a revolution in the concept of information provision for end-users, and opened up a diverse new market. The Internet has challenged the need for and role of traditional online services. Despite the benefits of the Internet, users face a number of dilemmas: finding needed information in a vast sea of information; time needed to find relevant information; how to measure the authority and quality of information found on the Internet; how to choose the appropriate search tool; constructing precise searches; and varying formats of retrieved information. This paper covers the benefits of the Internet and of traditional online services, the role of information providers and online hosts; the benefits of the single platform nature of HTML (hypertext mark-up language) to online hosts; the adoption of the Internet standard; and the new role of online hosts. Traditional online is in the decline, but traditional online hosts are far from becoming extinct. Host services on the Internet are removing the need for users to learn complex searching techniques and the need to go to multiple sites to locate information. The Internet is an opportunity for hosts to deliver targeted tools which precisely match the searching requirements of different audiences. New services are helping to eliminate the current dilemmas and hosts play an important role in that progression. (SWC)

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The Internet: the demise of traditional online

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Heinz Ochsner and K. Thomas
Knight-Ridder Information, Switzerland

Abstract: *For end-users the Internet has brought about a revolution in the concept of information provision and opened up a diverse new market place. Though very positive, the proliferation of Web sites and search tools now available to the user can leave a feeling of disorientation. Many dilemmas arise, such as: how to measure the quality of data retrieved? how to locate a good source? and how to develop effective searching techniques? For traditional online hosts the Internet is significant as it represents the first standard platform which does not require the user to make costly technical investments. All products and services developed in HTML are accessible by any Internet user. This new technology has facilitated the breakdown of publishing barriers. It provides an instant medium for authors and information providers to deliver data directly to targeted audiences, bypassing the channel that traditional online has provided. The need for — indeed the role of — online services is challenged and it raises the question: is traditional online a dying industry?*

Traditional online hosts have had years of experience in developing and refining sophisticated search tools, but most importantly hosts provide users with standardisation, i.e. the means to search efficiently across a range of sources with the knowledge that the information available is authoritative, evaluated and of real value. Working with information providers, to standardise and index data, hosts can provide a 'one-stop shop'. Using HTML the Internet now provides hosts with the first opportunity to deliver that experience to a wider market, in a style which is compatible with their existing working environment. Traditional online ***is*** *in decline but hosts are far from becoming extinct. Host services on the Internet are removing the need for users to learn complex searching techniques and the need to go to multiple sites to locate information. The Internet is an opportunity for hosts to deliver targeted tools which precisely match the searching requirements of different audiences. New services are helping to eliminate the current dilemmas and hosts play an important role in that progression.*

Keywords: online hosts, information providers, internet, HTML, standardisation, quality data

1. Introduction

Conjure up an image of a memorable journey by car: remember the scenery, the smells, the emotions, maybe even the game of 'I spy'. How many of those memories come from a journey on the motorway (autoroute)? The probability is very few. A journey via a country lane may be memorable and enjoyable but it's easy to get lost or stray from the route, so that when you finally reach your destination (if at all) it has all taken far too long. Country lanes quickly become congested and fail to meet the objectives of a journey. Travelling by motorway, on the other hand, may not be memorable but you complete your journey quickly and easily, taking the most direct route available. Country lanes are idyllic but not for those who want *speed* and *reliability*.

This scenario can be compared to the Internet. The world of new sites to browse through provides an attraction similar to a country lane, where users stop to wander and explore. However, as more and more people try to take part in the new Internet revolution, the more congested it becomes. Traditional information users, familiar with online services that provide precise, authoritative results, have been used to experiencing the benefits of motorway driving where the clear objective of getting from A to B is efficiently achieved. Yet the speed and accuracy of the motorway cannot be found on a country lane. Users seek the best of both worlds. This paper aims to explore the pros and cons of the Internet, to discover what role, if any, hosts will play in the new information environment and question to what extent traditional online services are in decline because of the Internet.

Is there evidence for this decline and demise? Yes, although not obvious, it is there:

- Alta Vista, the best Web search engine of all, with intelligent retrieval akin to some DIALOG commands, has done a terrific job of winning over the punters and is now ready for its stock market flotation (Ref 1);
- Free Web access to Medline, once the cornerstone of many host services and CD-ROM vendors, is out there (Ref 2);
- Flat-fee unlimited access to BIOSIS via JANET is new for 1996 (Ref 3).

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All these innovations must be nibbling at the edges of the traditional hosts' earnings or carving out new territory. A clear response is called for.

An international provider such as Knight-Ridder Information has ongoing growth in European countries and the Far East, but a mature market in its American backyard. The bread and butter science citation searching of old is giving way to a broader range of business information demands. So growth in one area is masking and compensating for the decline that exists in another. A large product offering and an international customer base provide protection and keep a company buoyant, if not complacent.

2. Benefit of the Internet to end-users

The Internet has ridden a tide of media hype which in its turn has helped to position the Internet as a revolutionary tool and has helped to educate new users. The Internet is significant more for what it represents than what it actually is. The Internet has opened the gates to a new wave of information provision to new markets. The Internet represents a distinctive change in the industry of information provision and communication. It brings together markets which have traditionally never been together. For example the entertainment market and the consumer market have not traditionally been involved in online services and could never be found in the same place as business information but now, whatever their business, end-users are able to access information at low cost from anywhere in the world, 24 hours a day 365 days a year. And the only investment required is a phone line and PC.

The new technology of the Internet appeals to a market which is fairly new to information and has very low levels of information literacy. Suddenly a variety of new information sources and search tools which had previously been hard to access are available instantly to users. Just as one may wander around a library in wonderment of the knowledge contained within, the proliferation of information on the Internet provides a taster to what may be out there. Curiosity fuels users to seek more and thus an instant addiction is created. The result is the creation of a broad new interactive market place for the dissemination of information. A market with new users, new rules and new ethics.

3. The Internet dilemma

Despite the benefits of the Internet, users face a number of dilemmas:

- *How to find what is actually needed in a sea of information?* The Internet does not have any obvious boundaries to categorise information neatly into relevant areas of interest. Users seeking to download the latest game have as much place on the Internet as the discerning business professional. Each type of user has to jostle for the information that is required from the mass available. There is no central authority that dictates which search tool to use or makes any guarantees that what is required actually exists. Consequently users are frequently overwhelmed by the amount of information.
- *How long will it take to find useful relevant information?* Finding meaningful results can take minutes to hours. The quantity of information is rarely a problem but trawling through the data to measure its relevance is often time consuming. Overloaded telecommunication systems can further slow the delivery rates of information down to a painful trickle.
- *When information is found, how can it be measured for authority and real quality?* Users have no yardstick by which to measure the value of data found on the Internet. Anyone can publish anything on the Web and often make information sound authoritative. If sources are unknown it is difficult to compare the quality or check the true value of the data. Pharmaceutical researchers have noted claims of cures to diseases published on the Web, only to find that the home page has disappeared within six months. Such claims are doubtful unless they are qualified by authoritative medical publications such as *The Lancet* or *New England Journal of Medicine*.
- *How does the user choose which search tool to use from the array available?* Users have a range of different Web crawlers and search engines available for use offering a variety of different searching aids, all of which have to be learnt for optimal use. The preferred search engine is dependent upon personal preference. It can be difficult to know the best search engine to use.
- *How should searches be constructed to be precise?* For users who are unfamiliar with the way data is structured in a database, or indeed how information is indexed, it is very difficult to become truly proficient in searching. For example a user who may be investigating tachycardia in patients treated with the cold cure Contac would expect to be alerted to synonyms such as phenylpropanolamide. The majority of search engines do not have the sophistication to do this automatically.
- *Will retrieved information be presented in a manner that fits the users environment?* Standardisation of formats is important for users to enable the data to be integrated into internal data management systems. Information from the Internet comes in a multitude of different structures and hence is not so easy to integrate.

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4. The benefits traditional online services provide

To put the dilemmas of the new Internet user into perspective it is important to explore the benefits of traditional online hosts. Defined as services which provide access to a range of data through proprietary, command driven systems, usually via a modem, traditional online services have provided an information service for many years. The age of the industry has meant searching techniques have been refined and developed through experience. Experience and customer demand have developed the industry so that the provision of data is timely, sophisticated, structured and authoritative.

Traditional online services such as DIALOG and DataStar provide the 'one-stop shop' for information professionals. Information from a wealth of sources — over seven terabytes of data or 20 billion pages of text and images (Ref 4) — is provided through one interface from over 55 million sources. Compared to the Internet, which is estimated to have 20 million unqualified pages (Ref 5), traditional online is infinitely more valuable to the business user. The benefit of cross file searching adds real value to the information by ensuring that all relevant matches are identified as well as removing duplicates. The value of the data is confirmed because all data available is quantified and carefully checked by the database providers, using only high-quality sources. The key benefit given to information supplied through a host is the value added service of sophisticated indexing, enabling users to target the information required precisely in minimal time.

5. Role of information providers

Database producers play an integral part in the development of the Internet. The real value of information lies in its quality. Information providers are key to the authentication of data, ensuring the real value of data by continuing to use established, known and respected sources. Updating of sources is also vital to the value of the data; where appropriate some sources can be updated several times a day. If the value of data is undermined users will never gain faith in the services which they use and pay for. The role of the information providers is important because they are able to be a policing service of sorts to validate the information.

Information providers have traditionally been strong in the structure and content of databases rather than its accessibility. The Internet, however, opens a new channel through which information providers can deliver information. The new technology is beginning to blur the lines of information provision.

Hosts package different information providers' material into one service. The benefit to the user is quite distinct because it enables the user to search for *all* relevant information on a topic, across a number of information providers, at the same time. Standardisation and cross indexing added to information providers data by the hosts is a powerful tool for the user to have at hand. It provides users with sophisticated and precise searching techniques. The added value to information providers is that their information is made available to a wider audience and is made more potent because a selection of quality sources has more impact and value for a user than just a single source.

For the successful future role of information providers it will be important to pursue the following actions:

- continue to concentrate upon the provision of quality authoritative data;
- work with hosts to deliver data to users in a format that they expect and thereby reach a new audience

6. Role of online hosts

Online hosts *add value* to data through standardisation, which enables a number of benefits to be delivered that are not readily available on the Internet, including:

- *one interface to a wide range of data*, enabling users to scan a multitude of sources using the same search term and to deal with one supplier rather than lots of individuals. Many databases can be searched simultaneously and just one of these databases may contain five million individual records. A Web surfing exercise would take hours to achieve an inferior result;
- *multi file searching*, providing the user with the confidence that all relevant information will be selected. Hosts also provide relevancy ranked searches where the host's software analyses occurrences of search terms statistically and provides not just the number of records found but a list of the records which are most relevant to the search terms entered. Current search engines on the Web are not sophisticated enough to pick up all related terms;
- *current awareness*, delivering information automatically, via fax, post and e-mail, the moment that it is published online. Such services provide real value for tracking competitors, alerting users to the latest developments. The user only has to record the search criteria once and then let it run automatically without ever going online; results will be sent automatically. Although alerts are available on the Web they can only be as accurate as the search engines behind them;
- *document delivery* from multiple sources, enabling users to order the original documents directly online. This provides the user with the completely integrated solution. Documents can be sourced from the Web but copyright can be an issue as well as the limited range of documents available;

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- *dedicated customer service desks*, available for specialist advice on database content and search guidance. Customer services are available around the clock to answer specific questions about content. Full supporting literature is available for all sources. On the Internet you are on your own.

In a nutshell users can be confident that data retrieved through a host is evaluated, high value information from confirmed sources, and the information can be identified within minutes. There is no comparison to the vast number of free Web sites in terms of content. So why does the Internet continue to be perceived as such a threat to traditional online information services?

7. What HTML means — a single platform

To understand why the Internet is having such a tidal wave effect on the information industry it is necessary to look at what is behind the Internet. What are the bones made of? Why is HTML raved about?

The significance of HTML is its evolution as the first industry standard, the first platform to which all services must adhere if they are to integrate truly with other applications and take advantage of the Internet. Debates on the actual sophistication of HTML as a development platform are prevalent. At this point the actual standard — whether it's HTML, Java or Z39.50 — isn't important. The significance is the convergence of services into a single format. When products are developed to run on a Web server using HTML as the development tool they are instantly accessible by any Internet user. This factor places HTML at the heart of the debate about the demise of the traditional online services because it is the first standard to challenge existing proprietary search languages, even though it is a standard with limited functionality.

Hosts are under threat of technology and the adoption of new working environments. Just as users have become familiar with the Windows working environment, they are now adopting the Internet and intranet environments. The Internet is a natural step in the progression of technology. Players who ignore the tide lose out. It is not necessarily the best who wins but the player who anticipates the market's mood, as was shown in the battle between Betamax and VHS or Apple and Microsoft.

8. How will HTML benefit online hosts?

By understanding the benefits of HTML (or any other equivalent standards), online hosts can take advantage of the Internet and use experience learnt in the development of the traditional online services to create real competitive advantage by offering their services on the Internet. Hosts cannot ignore the facts that:

- the Internet has provided a large new distribution channel which is populated by new untapped markets;
- users on the Internet are frequently people who have identified a need for information but not previously had any means to access information sources easily.

HTML is the key to the market because it provides the mechanism through which to deliver products on the Internet to reach this new audience. For the first time there is a clearer direction for product development. The implications impact the development of products for both the Internet as well as intranets. Hosts can pass on some significant benefits to their customers by making services available via the Web. Services provided over the Internet drastically reduce the investment costs which the user previously had to incur to access information: for example, investment in training to improve searching techniques. Sources of information can be provided in one place through one interface. HTML allows for flexible adaptation of products which users can access instantly rather than having to wait for special upgrades to existing software.

9. Adoption of the Internet standard

When online hosts adopt HTML there are multiple benefits which can be delivered to Internet users. As can be seen, hosts do not have to be excluded from the Internet. The advanced search engines which hosts have developed over the years can be translated to the Internet environment. The users would benefit from tools which perform complex searches automatically without the users having to develop their own search techniques. In addition host services can provide targeted information tools, providing access to specific content groups such as patents. Traditional standards of service would continue to be offered via the Web to different audiences without loss of sophistication.

Knight-Ridder Information has developed products using HTML for the Web, which provide different levels of searching control depending on the requirements of the user:

- *KR ScienceBase*, specifically for the bench scientist, feeds off our database resources yet is still able to combine powerful retrieval with a simplified approach to searching;
- a joint venture between Knight-Ridder Information and CompuServe has made available a complete collection of news sources to CompuServe's consumer online clientele;
- a whole suite of Web-based products is under development in the US and in Europe.

The development process has highlighted some of the considerations which must be made when translating

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existing search techniques into the Web environment, but is indicative of a commitment to the Web as the future for the electronic dissemination of information. Those wishing to check progress to date may do so now in the exhibition area.

An important area of education to be tackled is that of pricing. Information produced by labour-intensive means, qualified and indexed, can hardly be given away. A significant charge must be levied and information professionals with an appreciation of the worth of such data have long understood this. However, many Web users must also be convinced that a useful piece of information should have a price-tag. On the other hand, one can understand the repulsion of subscription fees greater than a year's worth of searching. Companies choosing this approach may ultimately regret it.

Hosts need to work in close alliance with the information providers to integrate, synthesise and add value to services, to compete with the multitude of new services. More price flexibility in these partnerships is called for. Gateways from hosts to consumer online services are expected to grow in number.

Predictions are that users on the Internet will rapidly come to appreciate the services that a host can provide and begin to demand a higher concentration of such services, which will undoubtedly lead to an increased level of merger activity.

10. New role of online hosts

As technology develops it is inevitable that the usage of the Internet will continue to rise, as did the usage of motorways, but only if the objectives of users are met. The proliferation of information available on the Internet will continue to grow, giving business users more reason to demand better levels of quality of products available on the Web, to steer a satisfactory route through the chaos. To satisfy the demands of this new group of users, the question arises as to how hosts must change to meet this new challenge.

The companies which provide these host services are having to mutate to stay abreast of external developments now impacting on their prescribed territory. Admittedly, some may be doing so belatedly but, like Microsoft, they have the capability and resources to create new products for a changing marketplace.

Although the type of online searching upon which this conference was originally founded may now be less in favour, the hunger for information increases exponentially and the challenge to continue to provide access to renowned information sources will be met. Hosts are very well aware that the Internet is not simply a threat but a dissemination medium of enormous potential. The past eighteen months have seen a burgeoning of Web and Windows products: DataStar, DIALOG, Profile, MAID and STN have all entered the fray. Inevitably, some will fall wide of the mark and a few will disappear. But, it was ever the case in our industry.

The key to success will be to keep sight of what is the real benefit offered to users, by hosts. That is to search *precisely* across many data sources, supported by the most comprehensive collection of *authoritative* data provided through one interface. Providing services which add value to the data by synthesising it and delivering it in the format that users require is now crucial: for example, the ability to transfer data automatically into groupware environments such as Lotus Notes. This approach ensures that hosts are able to maintain the advantage by continuing to offer the best collection of data from one source. Partnering with the information providers will ensure that the level of service provided continues to out-perform all other available sources.

11. Conclusion

In short, yes there is evidence for the demise of traditional, command-driven, online services, but they have not reached the end of the road!

The Internet provides the ideal environment which will allow hosts to thrive because for the first time technology is at a stage that will permit hosts to deliver the same searching sophistication that could traditionally only be delivered in command-driven services. The real benefit of the Internet is that travellers who appreciate all that the country lane routes have to offer can continue to appreciate those familiar sites while travelling at speed down the motorway.

The Internet signifies the convergence of two worlds. A rapidly evolving technology is meeting an older more constrained information repository head on. As this evolution continues, customers become more sophisticated in their expectations. The net result will be online information products with a truly different look and feel from those which have been in use for so many years.

Although traditional online hosts may be in decline they are far from becoming extinct. Direct distribution, joint ventures, price deals and intelligent Web navigators are either adverse external pressures or new opportunities in which to be involved and so remodel one's product offerings. It is a certainty that companies with proven longevity will reinvent themselves sufficiently to see in the millennium.

The future for untraditional online hosts is very positive and a future that is worth being excited about.

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Karen Thomas
Marketing Manager Europe
Knight-Ridder Information
Haymarket House
1 Oxendon Street
London SW1Y 4EE
UK
Tel: +44 (0)171 930 7646
Fax: +44 (0)171 930 2581
E-mail: karen.thomas@dm.krinfo.ch

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